much higher in this group. Of younger alcohol abusers surveyed, 45 percent had attempted suicide at least once. Most authorities agree that a higher incidence of abuse exists among juvenile delinquents. While the exact figures are not known, many of these users will go on to become alcoholic adults, while some will have normal drinking patterns in later years.

Treatment depends on prompt recognition and the institution of an appropriate regimen. Recognition can be a problem. The public in general does not readily acknowledge alcohol abuse in young people. Similarly, most young alcohol abusers seem loathe to accept the fact that they have a problem with alcohol. However, proper education of both the medical profession and the public to the fact that this entity does exist can overcome some of these resistances toward early recognition.

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REFERENCES

Tec N: A clarification of the relationship between alcohol and marihuana. Br J Addic 68:191-195, Oct 1973

Prendergast TJ Jr, Schaefer ES: Correlates of drinking drunkenness among highschool students. Q J Stud Alcohol 35:232-242, Mar 1974

Alcohol use and misuse by adults and youths, chap 1, *In* Alcohol and Health—Second Special Report to the U.S. Congress. U.S. Department of Health, Education, and Welfare, 1975, pp 1-26

Stimulants and Hyperkinesis

HYPERKINETIC CHILDREN have received the most attention in recent years as recipients of stimulant drugs. Some estimate that at least 300,000 children in elementary schools are receiving psychotropic medication for school difficulties and that 3 percent to 8 percent of elementary school children are hyperkinetic. Yet fewer than 25 percent of hyperkinetic children are treated with medication.

The term hyperactive (or hyperkinetic) has come to be associated with, to stand for or to be synonymous with such diverse terms as minor or minimal organic brain dysfunction, damage or disease; hyperkinetic impulse disorder; behavior syndrome or cerebral dysfunction, and about 30 others. There are many causes of hyperactivity in children and stimulant drugs are useful only in some of them. Hyperactivity is a symptom that describes behavior and can occur in any psychiatric disorder in children. It can occur in psychotic reactions, in psychosis associated with organic brain syndromes, in behavior disorders of childhood and even in transient situational disturbances. Learning disorders occur with all diagnoses and with no mental disorder, and some children with the hyperkinetic reaction behavior disorder of childhood have no cognitive disturbance. The minimal brain dysfunction syndrome should be limited to children who show some minor sign of cerebral dysfunction which could include any one of specific patterns of motor, perceptual or cognitive disturbance.

Drug treatment must be a part of the total program for a child and consideration must be given to complementary therapy methods—work with families, suitable programs for the child, educational planning, special groups and psychotherapy. Good medical care requires a thorough diagnostic evaluation of the psychiatric, neurologic, psychological and educational impairments, followed by an adequate trial of appropriate remedial education and a careful evaluation of which drug is most hepful.

Drugs should not merely provide a relatively easy and economical way of making the classroom situation more tolerable and manageable for teachers. Medication is recommended when a child with remedial and psychological help continues (even when out of a stressful situation) to show attention difficulty that significantly interferes with his academic or social functioning.

Methylphenidate and dextroamphetamine are effective in only 60 percent to 70 percent of behaviorally defined hyperactive children. They produce a decrease in hyperactivity and impulsiveness and an increase in attention span. There is a difference of opinion as to the effectiveness of the two drugs used. Methylphenidate recently has been preferred in dosages of 0.5 mg per kg of body weight twice a day, although at present it is recommended that on initiating therapy one dose of medication a day should be given and a second dose given only if necessary. Dextroamphetamine has often been effective in dosages of 2.25 mg per kg of body weight and may also be given as a long-lasting capsule. There are large individual differences in blood levels in children of the same body weight for comparable doses of the same drug. Prospective and retrospective follow-up studies show that children may become less active, impulsive and excitable by the time they reach adolescence, but continue to be more restless and aggressive than controls matched

for age and sex. A substantial minority may have psychiatric and social problems in adolescent and later life.

The long-term use of dextroamphetamine in hyperactive children causes a highly significant suppression of growth in weight and height. Tolerances develop to its weight suppressant effects but not in inhibition to height growth. The long-term use of methylphenidate causes a less striking growth suppression only when daily doses over 20 mg are administered. In a follow-up study of adolescents who had received methylphenidate in childhood for minimal brain dysfunction there was no serious interference with growth and height.

Reports conclude that with proper supervision there is a place for the use of drugs as one of the therapeutic methods in treating hyperactive children, but that the possibility of unforeseen long-term consequences indicates caution.

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REFERENCES

Solow RA: Child and adolescent pharmacology in the mid-seventies: Progress or plateau? Psychiatry Dig 37:15-16, 19-23, 27-30, 35-38, Oct 1976

Fish B: Stimulant drug treatment of hyperactive children, *In* Cantwell DP (Ed), The Hyperactive Child. New York, Spectrum Publications, 1975, pp 109-127

Mendelson W, Johnson N, Stewart MA: Hyperactive children seen as teenagers: A followup study. J Nerv Ment Dis 153:273-279, Oct 1971

The Use of Phenothiazines in Children

CHLORPROMAZINE was the first and initially most widely utilized phenothiazine in child psychopharmacology and has been used primarily for psychosis for more than 20 years. Thioridazine has also been a widely used drug. Indications for its use are agitation; hallucinations and delusions; hyperactivity; anxiety; terror and hostility when these are symptoms of psychotic illness; mental retardation, or organic brain damage.

Both drugs are widely used in the treatment of autistic children but because of their sedative effects they might be contraindicated for long-term administration because they seem to have a negative effect on cognitive behavior and learning. They have been of value for school-age schizophrenic children with acute as well as chronic symptomatology but have caused sleepiness and psychomotor retardation even in low doses.

Fluphenazine is highly effective in prepubertal autistic schizophrenic children, and trifluoperazine has proven to be somewhat better than chlorpromazine in autistic children. Ideally, drugs should enhance learning and should not be used as chemical straitjackets for psychotic retarded children. Drowsiness and lethargy are the most common side effects. Abrupt drug withdrawal of psychotropic drugs causes neurologic withdrawal emergent symptoms most of which involve involuntary movements in the trunk, head and ataxia.

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REFERENCES

Claghorn JL: A double-blind comparison of haloperidol (Haldo) and thioridazine (Mellaril) in outpatient children. Curr Ther Res 14:785-789, Dec 1972

Sprague RL, Barnes KR, Werry JS: Methylphenidate and thioridazine: Learning, reaction time, activity and classroom behavior in disturbed children. Am J Orthopsychiatry 40:615-628, Jul 1970

Engelhardt DM, Polizos P, Margolis RA: The drug treatment of childhood psychosis. *In* Smith WL (Ed), Drugs Development and Cerebral Function. Springfield, Illinois, Charles C Thomas, 1972, pp 224-234

Drug Treatment of Affective Illness in Children

THE CONCEPT of depression in young children has not yet found wide acceptance in the United States as it has in other countries. Drugs which have been shown to be effective antidepressants in adults have not been as well evaluated in depressed children, particularly those with psychomotor retardation. The symptoms of irritability, excessive crying, fretfulness and pronounced insomnia are useful criteria for the recognition of endogenous depression in children one to three years old. This condition and a variety of disorders in older children in which depression dominated the clinical features have been treated with tricyclic antidepressants. Depressed children have shown impressive evidence of hyperactivity, enuresis and temper tantrums in addition to the symptoms characteristic of depression. It has been observed that the greater the hyperkinesia and hyperactivity, the more positive were the effects obtained from the use of tricyclic antidepressants. Imipramine has been administered starting with 10 mg and increasing by 10 mg every third day until improvement was noted: 300 mg being the maximum dose given. Childhood manic-depressive illness and cyclic alterations of mood that are at a level of clinical significance have been treated with lithium carbonate